



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW4090  
 UNIQUE ID NUMBER: 10PW099  
 COMBUSTOR: Floatwall  
 ENGINE TYPE: TF

BYPASS RATIO: 6.0  
 PRESSURE RATIO ( $\pi_{00}$ ): 38.9  
 RATED THRUST ( $F_{00}$ ) (kN): 408.3

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	1.2	18.4	83.8	12.3
AS % OF ORIGINAL LIMIT	6.3	15.6	71.2	76.5
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			88.9	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			98.8	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			109.2	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			123.4	

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
 - DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	3.926	0.02	0.27	57.52	10.5
CLIMB OUT	85	2.2	2.996	0.02	0.31	41.17	4.3
APPROACH	30	4.0	0.979	0.04	0.55	12.74	0.7
IDLE	7	26.0	0.338	0.69	11.94	4.48	0.4
LTO TOTAL FUEL (kg) or EMISSIONS (g)			1323	384	6592	31122	-
NUMBER OF ENGINES				2	2	2	2
NUMBER OF TESTS				4	4	4	4
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				0.9	16.2	76.2	10.5
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	101.1-102.5
TEMPERATURE (K)	275.5-302.5
ABS HUMIDITY (kg/kg)	0.0033-0.0112

### FUEL

SPEC	Jet A
H/C	1.85-1.92
AROM (%)	17

MANUFACTURER: Pratt & Whitney  
 TEST ORGANIZATION: Pratt & Whitney  
 TEST LOCATION: Middletown, CT  
 TEST DATES: 13/04/2010-13/04/2010

### NO<sub>x</sub> REGULATION PARAGRAPH

x	2.3.2 c) (CAEP/4)
	2.3.2 d) (CAEP/6)
	2.3.2 e) (CAEP/8)

### REMARKS

- Data updated to reflect additional engine test as well as updated engine performance.
- Additional engine tested to show CAEP/4 compliance.
- Certification in accordance with Part III, Chapter 2, of Amendment 4 of ICAO Annex 16 Vol. II.
- NO<sub>x</sub> levels in accordance with Part III, Chapter 2, 2.3.2 c) (CAEP/4)

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)